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An evaluation of the effectiveness and acceptability of a new technology system to support psychotherapy helping skills training[1]

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Introduction

Learning skills in human relations for preparation as a professional psychotherapist or counsellor is important at all levels of training, from beginner through doctoral level. The potential use of technology to support this aspect of training is under-researched. There is known to be an increasing need for well-trained therapists in two major developed economic regions, the United States, and the United Kingdom. It is estimated that employment for trained psychologists in the US will rise by 14% between 2016-2026 (U.S. Bureau of Labor, 2018). Whilst in the UK, it was recently reported that 10% of mental health worker posts in the National Health Service were vacant (Campbell, 2018). Critically, with demand for professionally trained staff rising, it is essential to develop new, innovative, ways for training that can enhance the accessibility and sustainability of training methods. Training approaches could be enhanced by using new technology opportunities for skill development (Slovak et al., 2015; Murphy et al., 2017) that could open up the potential for collaboration between experts from across the world sharing knowledge across borders whilst reducing the costs associated with education.

There is now a trend in the psychotherapy research literature towards understanding the effects of individual therapists rather than the therapy approach and its association with outcomes (Castonguay & Hill, 2017a). Large scale studies using practice-based research designs have considered individual therapist effects by clustering groups of clients nested within therapist caseloads (Barkham, Lutz, Lambert, & Saxon, 2017). Such designs allow for the effects of individual therapists to be modelled within large datasets, such as that derived

from the UK's IAPT programme (Saxon & Barkham, 2012). Therapist effects have been shown to be good predictors of outcomes and it is suggested that attention in training can be applied to develop the most effective therapists (Saxon & Barkham, 2012). All psychotherapy training programmes are interested in developing the most effective therapists they can and usually there is a requirement within the training programme to demonstrate that a trainee has developed key skills in interpersonal relations (Hill, 2004).

Therapist effectiveness has been linked to the benefits of engaging in personal therapy during training, and by making a commitment to continuing personal and professional development once qualified (Murphy et al., 2017). Bennet-Levy (2019) suggests that therapist effects can be developed by engaging in personal practices and not only through personal therapy and suggested that personal practices can be grouped as either meditation programmes or self-practice/self-reflection programmes. Bennet-Levy (2019, p.1) also suggested there is a strong theoretical and empirical basis to the claim that '(1) personal and inter-personal qualities of therapists play a key role in client outcomes; and (2) personal practice is the most effective way to achieve changes in therapists' personal and inter-personal qualities'.

Therapy training in the behavioural and cognitive approaches has typically focused more on developing the technical aspects of an approach. Humanistic-experiential and psychoanalytic therapies have tended to focus more on developing self-awareness because it is generally the case that those therapies are more concerned with the interpersonal relationship between client and therapist. These therapies have concentrated on developing therapist intra- and interpersonal qualities through personal therapy and self-development groups. Regardless of the theoretical orientation being practiced, as therapist effects seem to contribute significantly to client outcome it is imperative to develop ways to support the development of intrapersonal awareness and interpersonal effectiveness during training.

There is a need to develop new approaches that can bridge the gap between the technical and conceptual with the interpersonal and reflective requirements. Technology can be used to support the development of the bridge between these components of training.

Existing pedagogies in psychotherapy for learning both self-reflective and conceptual-technical aspects of helping skills tend to draw on several standard approaches. These include didactic teaching, modelling, watching films of expert therapists, role plays, peer practice sessions, or supervision of actual practice (Hill & Lent, 2006; Hill, Stahl, & Roffman, 2007). Moreover, in comparison to the recent surge in technology mediated therapies (Olthuis, Watt, Bailey, Hayden, & Stuart, 2016), or remote-supervision in later stages of training (cf., Barnett, 2011 for reviews), the use of technology as a pedagogical device in psychotherapy education is relatively under-researched and somewhat developmentally delayed (Rousmaniere, 2014).

The current methods of learning helping skills are assuming old limitations of technology that are no longer present. The technologies that typically underpin training of basic helping skills have not changed for decades: working with video/film recordings is the only technology with a long history of use in psychotherapy education. Much of the existing practice surrounding video-based learning is still shaped by technology limitations that were present when traditional techniques, such as Kagan's (1984) Interpersonal Process Recall (IPR), were developed. For example, the difficulty of navigating within the video (linear viewing), the inability to 'annotate' or mark the video while watching to support subsequent reflection, and the need to be physically present and co-located with other learners if the video was to be worked on in a group for review. The on-going technological shift and ubiquitous access to innovative technologies renders these previous limitations irrelevant and presents a so far underexplored opportunity to enhance the acquisition of interpersonal helping skills supported by technology.

mPath, a new online system and software tool, has previously been introduced as a proof-of-concept exploration of what could be possible using new technologies (Slovak et al, 2015). mPath was designed through a research process that investigated specific design mechanisms that can facilitate students' iterative, multi-levelled and deep reflection on practice skills, hypothesised to improve learning outcomes (Murphy2017; Slovak, 2015). Based on this research, mPath was designed to support reflection on practice in skills learning contexts, self-reflection, supporting and receiving feedback from the client, peer observers and tutors, to create the availability of these facilities over an extended period, and to explore diverse ways of providing feedback through the addition of non-textual ratings on sets of variables derived in a learner-centred approach. mPath has several key features that address these elements of practice development. For example, the system provides the ability to textually annotate specific moments of the video stream, offers the opportunity to group these annotations into individual categories (tracks) that can be analysed separately or together; the annotations and tracks can be returned to easily over time; send requests for client, peer or tutor feedback on specific subsections of the video that address specific questions; Affect slider functionality (for non-textual ratings of skills); and the ability to share the annotated session with others (e.g. tutors) as part of the learning and development process.

The learning effects of such a system can only be observed in real-world deployments, as the expected mechanisms of effect include a longer-term change in learning approach. That is, there is a need to test the system in the context of an in-situ deployment to fully understand the mechanisms of how such new technology can impact learning. This pilot study provides the first empirical investigation of effects in introducing an online tool for interpersonal skills learning training in the context of a psychotherapy programme. We present data from a mixed method design with data collected over a three-year period (i.e.,

three cohorts of students), to evaluate the effective ness and acceptability of the new technology.

Method

mPath software and functionality

The details of the mPath system have previously been described, both in terms of its development and functionality (Murphy et al, 2017; Slovak et al, 2015), so just a brief description is provided here. mPath is an online software system developed for use by psychotherapy students within training and specifically for learning interpersonal helping skills. mPath is organized around individual video recorded practice skills sessions that students can upload to the secure storage system online. The system works by the student in the role of the therapist uploading a video-recording of a peer skills session, which is possible only with the consent of their 'peer client'. mPath allows the student to work on the session recording from any location through use of a computer with a modern Internet browser.

Within the system itself, students can focus on three different perspectives of the skills session: focusing on the therapist, the client, or the interaction between therapist and client. Within each of these perspectives the software offers the opportunity for process-reflection by using the tools functions. The tools enable the student to create clusters/tracks and annotate any moment using either a flag or a text comment. It is also possible to focus on non-verbal interaction only by working in a silent mode and students are also able to create 'Affect Slider' traces to generate a visual representation of ratings within the sessions. Additionally, students can request feedback using any of these methods from the client, peers or tutor/supervisor.

The reflection work completed by students produces a cluster of comments that is saved as a 'track' which is synchronized to the underlying video. Each track can be viewed individually or by checking a box multiple tracks can be selected and viewed at the same

time. An example of the standard view in mPath is shown in Figure 1. That shows multiple tracks within a session.

<insert Figure 1 approximately here>

Study Design overview

This study reports on a pilot deployment of the mPath system and used a mixed methods design to address the following research hypotheses:

> Integration of mPath into the curriculum will increase students' technical aspects of interpersonal helping skills but will not impact other academic achievements.
>
> Students will find the mPath system useful and perceive it as changing their learning/reflection approach.

To test our first hypothesis that integrating the use of mPath into a structured skills learning programme would lead to improved levels of therapeutic competency through developing interpersonal helping skills we designed a small scale quasi-experiment. Quantitative analysis was used in an independent groups design to test for between-groups differences on the effects of using the mPath system that was either being partially or fully integrated into the curriculum. Three independent groups were formed over a three-year period from within a university-based post-graduate level psychotherapy training programme. All groups received the initial helping skills training as a part of their first year within the training course.

Each cohort was exposed to mPath under different conditions. To explore hypothesis two and understand how students perceived the acceptability of using mPath, we used qualitative methods including interviews and thematic analysis to analyse the data. Students were interviewed regarding their use of the mPath system and were asked to demonstrate how they typically might use the system in front of one of the researchers. Their use of the system was then probed for further explanation and exploration to develop a deeper understanding of

how the system was being used and what learning goals students were either explicitly or implicitly working towards achieving.

Quantitative Study

Participants

All participants who completed the course provided consent for data pertaining to grades being used for evaluation research purposes. All participants of the interviews gave additional informed consent for their interview data to be used in the study. Ethical approval was granted by the University ethics review committee.

The sample for analysis in the results is N=72 (13=male, 59=female). There was a total of N=75 (13=male, 62=female) Master's level trainees that commenced the course over a three year period. Three students did not complete the end of module assessment due to either illness (n=1) or withdrawal (n=2) from the programme. In year one the cohort consisted of n=19 (3=male, 16=female) students, year two consisted of n=30 (6=male, 24=female) students and, year three consisted of n=26 (4=male, 22=female) students. Within the total sample, there were 66 full-time and nine part-time students that undertook the skills module. The sample of 75 students all completed the full 60-credits post-graduate level skills based learning that took place over a nine-month period in one academic year (October to June). All students were previously educated to at least a minimum of bachelor's degree level and at the time of the study were students attending a post-graduate degree at a UK based university.

Description of the training

Person-centred experiential (PCE) psychotherapy is a contemporary approach to psychotherapy (Murphy, 2017) based on the person-centred theory originally developed by Rogers (1951) and evolved through the experiential approach advanced by Gendlin (1962). PCE psychotherapy requires the psychotherapist to be committed to forming the therapeutic

relationship based on the six necessary and sufficient conditions (Rogers, 1957) and in so doing, place careful and focused empathic attention on the moment-by-moment experiential processing of the client. Through advancing a deep empathic understanding of the client's experiential process, the therapist enables the client to focus more closely on their inner experiencing, generating new meanings to their experiential world, developing greater self-awareness and acceptance moving in the direction of increased authenticity. The psychotherapist's empathic responding to the client's in-the-moment experiencing facilitates the client's emotional processing related to these experiences. Clients are considered capable of self-direction, as inherently moving towards making constructive, growthful, changes and striving towards becoming more fully functioning.

The two-year full-time post-graduate degree is recognized in the UK as a full practitioner training for students in PCE psychotherapy. The course provides approximately 600 hours of student-tutor contact time including a combination of theory classes, tutorial support, skills learning, encounter groups, community meetings, clinical placement learning and self-directed enrichment activity. The course is grounded in a person-centred experiential pedagogy in which students and staff co-construct the theory curriculum, agree to work towards developing evidence of therapeutic competency within the person-centred experiential paradigm and, students engage in weekly one-to-one personal psychotherapy for the duration of the course. Students are required to successfully complete a supervised clinical practicum for one year and must complete a minimum of 100-hours of face to face one-to-one client work.

The focus of this research is to evaluate the effect of introducing a new software system and integrating it into the skills learning curriculum. During the first year of the programme students engage in 100 hours of guided skills learning. There are two guided skills modules that run for 22 weeks in total; broken down the course is arranged into 22

separate four-hour group sessions and students are expected to take part in six hours of small group tutorials and at least six further hours of enrichment activity related to practice. Students also engage in additional, regular, self-directed small group practicals within and across each semester to support their learning of the psychotherapeutic helping skills. The primary aim for the skills modules is to learn the interpersonal helping skills as defined by a framework drawn from the Person-Centred Experiential Psychotherapy Scale (PCEPS) (Freire & Elliott, Westwell, 2014). The introductory level PCEP training scale is a shortened version of the full scale. The training version consists of five main competencies. These are 1) Client frame of reference/Track, 2) Core Meaning, 3) Client flow, 4) Accepting presence, 5) Genuineness.

The current study focused on the development of skills learning through the introduction of an innovative technology for supporting experiential and reflective learning. Students followed a structured programme when learning the competencies. Each of the three groups were exposed to the same structured skills training module. The difference being the incremental introduction of the mPath software system which happened in two stages. Group one received the 22-week structured model of skills training modules. Across the 22-weeks students attended workshop sessions that included a combination of tutor demonstration of skills practice, watching video of master practitioners, mini lectures, peer to peer skills practice sessions in which students rotate in taking turns as client, therapist and observer. The peer to peer skills-based practice sessions are video recorded followed by completion of a recording assisted recall. The recall session used a format designed within the course that is intended to support student-centred guided exploration and self-reflection on the video recorded session. Group Two received the same structured skills-based learning module as Group One with the addition of the mPath software. The software was made available for use in the students' own time and in between the weekly workshop sessions. No further

information on use of the system was provided and no tutor-demonstration sessions were added to the mPath system. Group Three also received the same structured skills-based learning modules but mPath was fully integrated into the curriculum. This involved students being gradually introduced to the mPath software and given instruction on using the system for viewing 'core course sessions'. These sessions were exemplar tutor-demonstrations uploaded into the mPath software. These core course sessions were examples of specific competences that students needed to learn. Each competency had three separate three-minute clips that could be reviewed by students by watching them back as many times as required. Students were also required to analyse the tutor-demonstration sessions by creating and annotating tracks of each of the clips. Finally, all students also uploaded their own video sessions they had made in preparation for each weekly workshop and then used the software to support reflection, annotation and create feedback requests.

Measures

Assessment of skill competency

All students were expected to develop their proficiency in five basic skills over the first year of the programme and, prior to commencing the clinical practicum, students were required to submit a fifteen minutes video recording of one of their therapeutic skills practice sessions for assessment. The video was assessed using the PCEPS Training Version as the criterion for competency. The video recording is played in front of a panel of three judges. The judges were qualified psychotherapists and trainers in the person-centred experiential approach. Two judges were staff members and one judge was a professional psychotherapist external to the university. The external judge also acted as the chair of the panel. This assessment acted as the primary outcome of competency in the study.

Assessment of practical skills learning through the viva panel takes place at the end of semester two. Each judge independently rated the video using the PCEPS Training Version.

Each of the five competences is rated on a six-point Likert type scale. The six-point scale is anchored to criterion references that range from *1* 'Not present' to *6* 'Excellent' with the exception of the competency 'Accepting Presence' which is scored *1* 'Explicit nonacceptance' through to *6* 'Excellent acceptance'. Scores for each competency were averaged across the three raters to create the individual total score for each student.

Assessment of process analysis and case reflection

Students are also assessed on their capacity to critically analyse and write reflectively about a piece of skills practice after completion of the first semester (the midpoint of the course). The task involves writing a process analysis of a skills practice session that focussed on a specific section of skills work to reflect on the process of therapy and their own inner processing and applying these to theory and highlight examples of skills in action. This assessment acted as a measure of ability to critically analyse the therapy process at the midpoint of the skills module.

Assessment of theoretical knowledge

In addition to the development of skills, students are also assessed for the development of theoretical knowledge. Students completed four theory-based essays ranging from 3,000-5,000 words each. Each essay is concerned with an aspect of the theory and practice underpinning person-centred experiential psychotherapy. All writing tasks are graded using a standardised marking system within the university for postgraduate courses. The grades for essays were used as a secondary outcome variable as per the hypothesis.

Results

The descriptive statistics showing each cohort by gender and full- and part-time status. are presented in Table 1.

<insert Table 1 approximately here>

Three independent cohorts of psychotherapy students studied a skills-based learning module for one academic year and were exposed to different levels of a new software system (mPath) designed to support reflection on skills practice in order to enhance skills development and were assessed by a panel of judges using the PCEPS Training Version. Table 2 shows the descriptive statistics for the three cohorts on the PCEPS.

<insert Table 2 approximately here>

Practice skills development

Using Levene's Test of homogeneity of variances, scores on PCEPS-Training Version did not statistically significantly differ from zero [1.59(df = 2, df = 69), $p > 0.05$] suggesting the data was suitable for analysis of variance (ANOVA). One-way ANOVA showed that scores on PCEPS Training Version at the end of the skills training modules statistically significantly differed across cohorts ($F = 5.21$, $p < .01$). Post hoc tests using Tukey-HSD showed the mean differences were statistically significantly higher in the third cohort compared to the first (2.95, $p < .05$) and second (3.27, $p < .05$) cohorts but the mean differences between the first and second cohort were not statistically significantly different. The three groups did not statistically significantly differ on their academic performance in the first semester ($F = 1.08$, $p > .05$). These findings support the first hypothesis.

Process analysis and reflective writing skills

Students' ability to critically reflect upon and analyse their skills practice is often considered to be an indicator of counsellor ability. To test whether the difference in ability could be detected in the middle of the training programme an analysis was carried out on scores for an assessed written assignment submitted in the form of a process analysis report based on a

skills practice session. Table 3 shows descriptive statistics. Test of homogeneity using Levene's statistic [2.85(df = 2, df = 72); $p > .05$] was nonsignificant suggesting the data was suitable for analysis of variance. One-way analysis of variance showed that mean scores on the process analysis assessment task differed significantly [F(df = 2, df = 72) = 3.72, $p < .05$]. Post-hoc tests using Tukey-HSD revealed a significant difference between cohort 3 (structure use of mPath) and cohort 2 (unstructured use of mPath) with mean difference for cohort three was 5.81 ($p < .05$) percentage points higher than cohort two. The mean difference between cohort three and cohort one was not significant (4.68 percentage points higher). These findings provide some support the first hypothesis.

<insert Table 3 approximately here>

Theoretical knowledge essays

Students in all cohorts completed four theory essays across the academic year as part of their module assignments that ran in parallel to the skills-based module and panel. We were interested to understand whether using mPath to support the development of skills competency might also be related to better scores in academic writing about theory. Students completed four theoretical essays, two in the first semester and two in the second semester. Normality tests using Mauchly's Test of Sphericity was significant (W = .76, $p < .001$). A repeated measures two-way mixed ANOVA with Greenhouse-Geisser correction showed that mean scores in theory essays did not differ significantly between time points [F(2.49, 179.34) = .446, $p > .05$] and across cohorts [F(2) = .982, $p > .05$] suggesting that academic and skills-based learning are somewhat independent. This finding also supports the first hypothesis.

Acceptability of mPath

Having established that using mPath contributes to skills development, it is also important to understand the acceptability of the technology system and using mPath within the

programme. To investigate the acceptability of mPath through the users' experience, nine participants volunteered and were interviewed about their perceptions of how mPath supported them in learning therapeutic skills. All identifying features about participants including names were changed to protect anonymity. The interviews were transcribed and analysed using thematic analysis within the software package Dedoose. Dedoose enabled the interviews to be transcribed and coded. We followed the steps for coding set out by Braun and Clarke (2013). This involved reading and re-reading the transcripts making notes and becoming familiar with the data, initial coding, grouping the codes to make themes and reviewing the themes and making backward comparisons to the interview transcripts.

Four major themes were identified the addressed the acceptability of mPath, these were "autonomy", "authenticity", "In-depth reflection" and "analytical visualisation". Each of these themes are presented below.

Autonomy

Participants reported that they found the autonomy in self-directed study and self-reflection on practice was a fulfilling feature of mPath. User's experience suggested that the system supported their reflection and observations on practice by being free to choose when and how to explore their practice skills sessions. Participants reported that without mPath they imagined having to use traditional methods for reflection on practice, for instance taking hand-written notes for recording retrospective reflections on a session. By using mPath, they found it possible to review the recorded sessions repeatedly, whenever the participants were available and annotate the vide track immediately:

> Participant 2: *I do it whenever I have a lot of free time, because I want to spend a good enough time to do it, because I want to keep doing it again and again, so I'd rather just sit for a while and do it, because then the flow of thoughts is also there.*

Participant 5: *I am more in my own frame of mind. So I find it useful that I can give it a week or two later.*

Another participant found mPath had good acceptability because it allowed for self-reflection and supported autonomy in skill development through reviewing tracks and identifying aspects of sessions where therapist responses had missed or neglected client expressions. By focusing on specific tracks using the video-navigating features in mPath they said:

Participant 3: *Yes, and you know like, because it can really be sometimes that you have a session that you think 'that one is really great' or get good feedback. I had one the other day. And then going back to watch it and just I felt like so many times like her core meaning was really clear and I had not communicated that. Or things that I just blatantly missed or was kind of following a kind of track that was almost like a side-track. So yeah, like I think. watching that in this (anm: mPath) and being able to stop and go back and stop and go back, and reflect how would I know that?*

The participants also mentioned that their autonomous learning was supported through the feedback functions in mPath. While participants typically received responses from their client or tutor immediately during the training workshop, mPath allowed the participants to wait, review, and process their thoughts and emotions thoroughly before requesting more focused and specific feedback from the client or tutor. The clients have a choice as to respond and have sufficient space to give their feedback to their therapist.

Participant 6: *Yes, on mPath feedback my clients were more able to say: no this is not what I am thinking. But like after a session it would be like "yeah kind of" softer.”*

Participant 5: *I don't know if you found this, but sometimes in sessions when it is quite emotional or when it seems quite difficult for the client they are not asked afterwards how it went. They are not really... they just ask, "are you ok?" and then it is really the focus on the therapist, which I agree with but then you don't have the client’s direct feedback. So, it [mPath] is also another opportunity to give that. It is difficult to give feedback straight away in that kind of session… Cause she (the peer)*

can pin-point exact times. I can know exactly at what time she was feeling that. And it is easier to see what the build-up was. At the time they seem like general feedback-comments. And she might say "ah you mentioned this..." and that was good. And with mPath she can tell me exactly what she means by that.''

Authenticity

As the example above shows, mPath is supporting autonomy in learning skills, in addition to this the system also supported more genuine and authentic feedback being offered. Being an authentic therapist is an important aspect of skills development. mPath was acceptable to learners in that it helped participants gain more self-awareness about their responses and behaviours towards their clients. Participants 2 stated, "everything is exposed" through reviewing the practice recording repeatedly. mPath helped the participants to discover their blind spots and develop their communication skills. The excerpts below are examples of mPath enhancing the participants' authenticity as therapists.

Participant 6: *when you put the comments, it helped me kind of analyse my own self.*

Interviewer: *And what kind of things were there for you, that you realized through it?*

Participant 7: *Directivity. I can be quite directive and challenging in therapy. And sometimes I am aware I am doing it, sometimes I am not, so coming back and watching as an observer it is a lot easier to see the times, I am quite challenging. Sometimes it is good to be challenging I think, it depends on the context. And what is being said. The relationship with the client. So, it has been good for me in that way.*

Participant 3: *I go back and watch, and I can see why that was good using the PCEPS: 'Ah I was not just tracking, I was sort of getting under the feeling.' that is great. And then I can almost sort of use that as a standard for myself.*

Participant 4: *It helped me see how many responses I made. Where my criticisms are. It helped me technically understand my video much better than watching it. It taught me something more than it aided me.*

In-depth reflection

The mPath system seemed to have good acceptability as it provided opportunity for in-depth reflection. In-depth reflection took place when the participants wanted to explore more their perception about themselves within the taped sessions and extend their level of awareness on themselves in practice situations, learning from their experiences through using mPath.

Participant 5: *when you watch the video back you are very much more aware of the PCEPS. You know you are very much more aware of like 'am I being accepting at this time? you know: am I being congruent with myself? am I being congruent with the client?' Whose frame of reference am I in?'*

One participant said that by engaging with mPath allowed them to gain an in-depth reflection on practice sessions with peers using the video system which enabled them to change their perception of their empathic understanding and other therapeutic attitudes towards clients. mPath motivated the participants to understand more about themselves and others.

Participant 1: *I want to know, I want to find out what are the blocks to offering sincerity and empathy back.…(by) watching it (the video), yeah, the one thing I am really working on is core meaning and trying to get the felt sense and so what I would do sometimes is kind of listening as the client is talking and trying to really make sense of 'What is she feeling? What are her feelings?' (And she is sort of...?) And that thing that works.*

Through in-depth reflection supported by mPath, the participants not only found what improvement is needed but also learned through reflection how to adjust themselves in term of learning therapeutic skills.

Participant 7: *Watching the video kind of triggers something, then I put the comment: "that was not the best thing to do at the time, I should have, could have," just this kind of thing. What was I thinking? Or how was I thinking?*

Participant 3: *I think yeah, the moment might have been just feeling of myself that I need to be reflecting a bit more on my work on my therapy practice kind of after last semester thinking I have quite a lot of work to do and have a lot of improvements to make.*

Analytical Visualization

The visual presentation of the mPath system was found acceptable and helpful. The system allows for bringing together of data from multiple perspectives. This includes the recording of ratings using affect slider, the categorized annotations on tracks that are time stamped to specific moments in the video. For example, participants can rate the therapists' or clients' psychological status, and these can be linked across the videos, tracks, and graphs. The visual presentation helped the students develop:

Participant 5: *I think it is just all in one place and it is a way of structuring your reflection (...) and I am not sure if I would have thought of doing this if I was just writing notes. So, I feel like these ideas were given to me through mPath. And I was not even aware before that people did it differently. So, this is the way that I thought you should do it and what helped me.*

Participant 5: *I like that we can have the different bits [tracks, components] to break it down. And see different bits and then compare different bits. And I like when it comes up on the logs.*

Participant 4: *I think that would have helped me more, to see the graph. And help me choose a video, cause that way I could not only measure empathy, but also body language, everything with a graph and compare it. Here it is more comments.*

Participant 3: *Yeah. Just to really pinpoint feelings. To really pinpoint: Am I feeling present, am I feeling like… you know... and we are using the PCEPS so then.*

Participant 2: *Also, I think it was helpful, like in terms of awareness, like going back to that (growing self-awareness)…Because when you watch it back, you know how it is coming across. And what you can do to improve on that. And comment on that specific moment. And rate your body language as on that.*

The analytical visualization in mPath also enhanced the capacity to make changes to practice through abstract conceptualisation of the participants skills development. It has given the practitioners time and opportunities to understand their psychological status and cognitive capacity to help their future clients. One of the participants reflects below:

Participant 3: *You can through your kind of observations and reflection you can see exactly what you are doing and that you can sort of think about what you like to be doing or experimenting with. And that you can actively*

make changes and adjustments. And this time the moment is a practice time where you can be experimenting. Rather than I think maybe my approach before was a bit like: 'Let's just see how it goes. And take me to the session and hopefully it is good.' And now, something switched! Like towards the end of last semester: 'No you can make changes, you can adjust'. I think this switch using mPath I can then kind of track much more closely what I am and am not doing and what I want to do and then I change it and experiment and see if it is working and adjust.

Discussion

In this study we have evaluated the effectiveness and acceptability of using a new software technology to support the development of interpersonal helping skills within the context of a postgraduate psychotherapy training programme. Using the new technology system *mPath* was associated with better skills ratings from independent judges using the PCEPS Training Version. The best results were found when the system was fully integrated into the module and used as a pedagogical device to support the skills learning curriculum. In addition, qualitative interviews suggested that the mPath system was acceptable to users and supported student's development of capacity for self-reflection on their learning processes within the skills learning module.

Supporting trainees to develop interpersonal skills is again becoming a key area for psychotherapy training. This can be evidenced by the emergence of a growing literature in the field of deliberate practice (Rousmaniere, 2019). Rousmaniere (2019) has set out guidance for engaging in deliberate practice in a helpful new deliberate practice manual. In the manual trainees and experienced therapists can engage in guided work for developing their inner capacity for responding to clients and staying attuned even when the pressure is heightened within a therapeutic encounter. It is important that, during intense therapeutic encounters, therapists can stay close to and be aware of their inner experiencing. Experiential

avoidance is a well-known barrier to empathically engaging with clients (Greenberg, 2010). Using mPath is one way in which the capacity for attunement to difficult internal experiencing can be developed. Trainees using mPath were able to review their video tapes of their sessions, they were able to gain a deeper insight into their personal reactions to clients within the sessions and develop a deeper understanding of these. This was shown in the qualitative analysis where participants reported their development of becoming more authentic. The video annotation system can be used in a self-directed capacity enabling a free and open exploration. One important feature of deliberate practice, according to Rousmaniere (2019), and that mPath supports, is the capacity for control over the reviewing process that does not lead to increasing shame. With mPath, when the sessions are reviewed by the trainee therapist, they can request feedback on specific elements of the session which allows the therapist to limit the chances of being shamed by keeping control over what aspect of the session might be revealed.

The use of technology to support the development of psychotherapy skills is a growing field of research and development. Wampold (2018) has been working on development of a new technology to support deliberate practice using a combination of pedagogical tools including tutorials and video recorded practice-based scenarios where therapists can practice their responses to role play situations. Wampold (2018) states that practice is required in order to become effective and that doing so in a deliberate manner will enhance therapist effectiveness. mPath enables therapists to upload their videos of client sessions and to review these with the support of peer or supervisor feedback and this can be done from a remote location. Therapists can then go back into the next session having integrated feedback from peers and tutors/supervisors and be more prepared for similar situation should they arise. They may also be able to use the learning from the video review

to raise important issues with the client where the therapist may feel they missed important aspects of the client's experiencing or expression.

The mPath system was acceptable to trainees although there were some minor issues raised that suggest further work is required. There were some instances where the system seemed to present difficulties for users in terms of stability and reliability. This was an important feature for building and developing trust for users in the system. Trust in any technology is a major issue and as the mPath system continues to be developed this will be an important issue to attend to. Security, trust and reliability for using mPath is an important factor that is addressed more fully in a study by Slovak et al. (2015). mPath users are currently 'in training' when using role plays and the system has not yet been tested by using videos of actual therapy practice from clinical settings or with qualified practitioners. Establishing greater trust by users for the mPath system will be required prior to use in clinical setting.

Prior research informing the underlying rationale for the mPath design has suggested that engaging in deliberate practice and using mPath for reflection on practice aims to transfer knowledge to a procedural memory store. The aim being that through practice previous experiences can be stored and recalled when in similar situation. This is precisely the kind of capacity building that therapists can do to enhance their skills. However, this has not been tested in this study and further research is needed to assess whether this effect is taking place and happening within the training process. Similarly, further research might also be conducted to consider the effects of using mPath on outcome in direct client work.

There are some limitations to the current study. Firstly, there is no control for baseline differences in skill level prior to starting the course. There is of course the possibility that there was a difference between the cohorts prior to starting the skills programme that might have accounted for the effect observed. However, all students admitted to the programme

were novices and had received no formal or minimal training in therapeutic or counselling skills before starting the course. Similarly, the sample sizes for each cohort are relatively small and further studies conducted with larger samples will help to build the evidence and lead to further refinements of the mPath system for supporting skills development. And finally, there is likely to have been some researcher effects as one member of staff involved in the skills training programme was also involved in the development of the mPath software. This could be resolved by future research being conducted in settings without the risk of researcher allegiance effect.

In conclusion we suggest that the future of new technology for interpersonal skills development training is an area that requires further attention for both research and development. Old methods of using video to support practice can now be updated with the annotation system offered by mPath. Similarly, the system appears to offer the opportunity for working in teams and including peers, tutors and supervisors from anywhere in the world. The internet, combined with new software developments, offer a promising future for psychotherapy training that can be both sustainable and accessible.

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Tables

Table 1. Descriptive statistics for Cohort, gender and full/part time study

FT/PT			Gender		Total
			Female	Male	
Full Time	Cohort	1.00	16	3	19
		2.00	18	5	23
		3.00	20	4	24
	Total		54	12	66
Part Time	Cohort	2.00	6	1	7
		3.00	2	0	2
	Total		8	1	9
	Cohort	1.00	16	3	19
		2.00	24	6	30
		3.00	22	4	26
	Total		62	13	75

Table 2. PCEPS Training Version score for cohorts

					95% Confidence Interval for Mean	
Cohort	N	Mean Score	Std. Dev.	Std. Er.	Lower Bound	Upper Bound
1.00	19	16.42	4.55	1.04	14.23	18.61
2.00	29	16.10	4.26	.79	14.48	17.72
3.00	24	19.38	2.76	.56	18.21	20.54
Total	72	17.28	4.14	.48	16.31	18.25

Table 3. Descriptive statistics for process analysis

Cohort	N	Mean Score	Std. Dev.	Std. Er.	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
1.00	19	60.63	10.19	2.34	55.72	65.54
2.00	30	59.50	7.89	1.44	56.55	62.45
3.00	26	65.31	6.96	1.37	62.50	68.12
Total	75	61.80	8.54	.99	59.84	63.76

Figures 1. Visual representation of mPath